

What is claimed is:

1. A generator comprising a generator main section having a stator provided with a winding and a rotor provided with a winding and opposed to the stator with an air gap therebetween, the rotor being rotatably supported by a rotating shaft, and

an excitor having a stator provided with a winding and a rotor provided with a winding and opposed to the stator with an air gap therebetween, the rotor being rotatably supported by the rotating shaft of the generator main section, and

wherein the winding provided on the rotor of the generator main section and the winding provided on the rotor of the excitor are electrically connected to each other through electronic parts, and

the stator and the rotor of the excitor are opposed to each other with an air gap therebetween in a direction along the rotating shaft.

2. A generator comprising a generator main section having a stator provided with a winding and a rotor provided with a winding and opposed to the stator in a direction along a rotating shaft with an air gap therebetween, the rotor being rotatably supported by the rotating shaft, and

an excitor having a stator provided with a winding and a rotor provided with a winding and opposed to the stator in the direction along the rotating shaft with an air gap therebetween, the rotor being rotatably supported by the

rotating shaft of the generator main section, and

wherein the winding provided on the rotor of the generator main section and the winding provided on the rotor of the excitor are electrically connected to each other through electronic parts, and

the rotor of the generator main section and the rotor of the excitor are arranged in substantially the same position in the direction along the rotating shaft.

3. A generator comprising a generator main section having a stator provided with a winding and a rotor provided with a winding and opposed to the stator in a direction along a rotating shaft with an air gap therebetween, the rotor being rotatably supported by the rotating shaft, and

an excitor having a stator provided with a winding and a rotor provided with a winding and opposed to the stator in the direction along the rotating shaft with an air gap therebetween, the rotor being rotatably supported by the rotating shaft of the generator main section, and

wherein the winding provided on the rotor of the generator main section and the winding provided on the rotor of the excitor are electrically connected to each other through electronic parts, and

the rotor of the generator main section and the rotor of the excitor are made of the same member.

4. The generator according to claim 2, wherein the stator

of the generator main section is arranged on an outer diametrical side from the stator of the excitor, and

the rotor of the generator main section is arranged on an outer diametrical side from the rotor of the excitor.

5. The generator according to claim 2, wherein the stator of the generator main section is arranged on an inner diametrical side from the stator of the excitor, and

the rotor of the generator main section is arranged on an inner diametrical side from the rotor of the excitor.

6. The generator according to claim 2, wherein the rotors of the excitor are arranged in plural in the direction along the rotating shaft.

7. The generator according to claim 4, wherein the stators of the generator main section are arranged on both axial sides of the rotor of the generator main section, and one of the stators of the generator main section is connected to the other of the stators from the outer diametrical side of the rotor of the generator main section.

8. A power generating installation provided with the generator according to claim 1, wherein the rotating shaft is connected to a prime mover and a mechanical output generated by the prime mover is input into the rotating shaft.

9. A power generating installation provided with the generator according to claim 2, wherein the rotating shaft is connected to a prime mover and a mechanical output generated

by the prime mover is input into the rotating shaft.

10. A power generating installation provided with the generator according to claim 3, wherein the rotating shaft is connected to a prime mover and a mechanical output generated by the prime mover is input into the rotating shaft.